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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR    | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/820,959      | 04/08/2004  | Gueorgui Milev Mihaylov |                     | 9544             |

7590 04/25/2005

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EXAMINER

BASTIANELLI, JOHN

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3751

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/820,959 | <b>Applicant(s)</b><br>MIHAYLOV ET AL. |  |
|                              | <b>Examiner</b><br>John Bastianelli  | <b>Art Unit</b><br>3751                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/8/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Suggestions***

1. Claims 1 and 6 have the following informalities: The claims have paragraphs that begin with a capitalized letter, but these should be in lower case. The claims are replete with grammatical errors and parts which are not understood. For example: In claim 1, part h), it is not understood what a "corresponding sit" is. In claim 1, part i), "said means said stem" does not make sense. In claim 3, "groves" should be --grooves-- and "insolate" is not understood. In claim 9, "threadely with body insert" is not understood. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 9, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 3751

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by

Marino, Jr. et al. US 4,634,434.

Marino discloses a hybrid flow metering valve having:

- a) A body 17 having an inner tubular space along the main axis of the body thereof and having said tubular space divided to at least two substantially different portions - a first one (upper 17) substantially threaded leading portion and a second one (lower 17) which can be internally threaded or smooth designated as regulating portion; at least two relatively interchangeable ports - one inlet port 15 and one outlet port 16 in fluid communication with said regulating portion of said tubular space and being separated longitudinally by internally threaded or smooth cylindrical surface;
- b) A cylindrical stem 18 having at least two substantially different portions longitudinally on its surface: first one (upper 18) - substantially threaded with the same pitch as said body and congruently engaged with said body threaded surface thereof designated as leading portion and second one (lower 18) which can be smooth or threaded proliferating longitudinally into said second portion of the body between said inlet and outlet ports designated as regulating portion;
- c) Said leading portion of said stem having zero backlash fit with congruently engaged body leading portion thereof defining leading thread capable to move longitudinally said stem into said regulating body portion upon rotation of said stem and said regulating portion of the stem being threaded or smooth is engaged threadably or slidably with corresponding said regulating portion of said tubular space;

Art Unit: 3751

- d) At least one of the mutually engaged said regulating portions of the tubular space and said regulating portion of said stem is substantially threaded;
- e) At least one of the said substantially threaded surfaces has its thread substantially truncated with tapering truncation - for the internal thread from the major diameter of internal thread to the diameter equal or lesser than minor diameter of internal thread and for the external thread from the major diameter of external thread to diameter equal or lesser than minor diameter of external thread;
- f) Said mutually engaged regulating body portion and said regulating stem portion defining at least one spiral backlash or groove along said tapering truncated thread and said backlash or groove being with tapering cross-section;
- g) Said tapering cross-section defining tapering flow passage between said inlet and said outlet ports and said cross-section of said tapering flow passage being a function of the length of said stem engaged between said two ports therefore function of rotation of said first portion of said stem into said first portion of said tubular space;
- h) Said stem having ogival front part adjacent to said truncated threaded portion and said front part extended beyond said outlet port when said stem fills completely said space between said inlet and outlet ports and can seal hermetically corresponding sit defined into said tubular space;
- i) Said stem having a means for rotation 19 mounted on extended out of said body part of said stem, so that by rotation of said means said stem will axially move into the space between said inlet and said outlet ports, whereby providing full range of flow regulation from "shut-off" position when said stem completely fills said space, then very "low flow" regulating position along the backlash capillary channel when said stem is partially removed from said space, then

Art Unit: 3751

"moderate flow" when said stem is inserted only partially into said inlet port by said front portion and "full flow" position when said stem with said front portion is removed completely and said space is empty.

The stem leading portion is separated from the regulating portion by a smooth cylindrical portion. The body of the valve is seen as having more than one coaxial mounted portions. The diameter of the inlet and outlet ports is smaller compared to the diameter of the inner tubular space. The stem is engaged threadably with body insert made from material with predetermined low coefficient of friction.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marino, Jr. et al. US 4,634,434 in view of Phillips US 4,601,310.

Marino lacks grooves in the stem. Phillips discloses grooves 32 and 36 in the stem for O-rings. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make grooves in the stem of Marino as disclosed by Phillips in order to seal the stem better from leaking fluid.

8. Claims 5, and alternatively 1, are rejected under 35 U.S.C. 103(a) as being unpatentable over Marino, Jr. et al. US 4,634,434 in view of Magnasco US 5,141,027.

Art Unit: 3751

Marino lacks a mention of reversing flow. Magnasco teaches “flow is not limited to a particular direction of travel, as similar results can be achieved if the flow is reversed through the valve” (col. 6, lines 3-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the inlet as the outlet as taught by Magnasco in the valve of Marino in order to use the valve in either direction.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marino, Jr. et al. US 4,634,434 in view of Callahan, Jr. et al. US 3,428,291.

Marino discloses a handle 19. Marino lacks a scale for measuring the degree of rotation. Callahan discloses a scale for measuring the degree of rotation (Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a scale for measuring the degree of rotation as disclosed by Callahan on the valve of Marino in order to more accurately set the fluid flow through the valve.

10. Claims 8, and alternatively 1, are rejected under 35 U.S.C. 103(a) as being unpatentable over Marino, Jr. et al. US 4,634,434 in view of McDonnell US 3,841,354.

Marino lacks the ogival front portion of the stem sealing the inlet/outlet port. McDonnell discloses an ogival or conical front part sealing the inlet/outlet port (Fig. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the front part as disclosed by McDonnell on the valve of Marino in order to insure the closing of the valve.

Art Unit: 3751

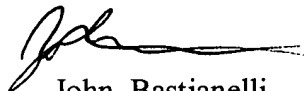
***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnson, Tooth, Nakamura, Terry and Waller disclose metering valves. Aslan discloses scales on metering valves.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Bastianelli whose telephone number is (571) 272-4921. The examiner can normally be reached on M-F (9:00-6:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John Bastianelli  
Primary Examiner  
Art Unit 3751



JB  
April 20, 2005